

ABSTRACT OF THE DISCLOSURE

A fuel cell system and a control method thereof are provided. The fuel cell system includes a main fuel cell stack having an anode and a cathode arranged in a state in which an electrolyte membrane is interposed therebetween; a fuel supplying device connected with the anode of the main fuel cell stack by a fuel supplying line that supplies hydrogen-including fuel to the anode; an air supplying device connected to the cathode of the main fuel cell stack by an air supplying line that supplies oxygen-including air to the cathode; and a sub fuel cell stack that uses hydrogen generated at the anode during reaction as fuel. With this structure, energy efficiency of a fuel cell can be increased and danger due to exhaustion of hydrogen generated at the fuel cell stack can be decreased.